FINAL REPORT
LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT
PROPOSED GESSNER ROAD PAVING AND DRAINAGE IMPROVEMENTS
NEUENS ROAD TO LONG POINT ROAD
CITY OF HOUSTON, TEXAS
WBS NO.: N-000809-0001-3

PROJECT NO. 13-889E

TO

REYNOLDS, SMITH & HILLS, INC.
HOUSTON, TEXAS

BY

GEOTECH ENGINEERING AND TESTING

SERVICING

TEXAS, LOUISIANA, NEW MEXICO, OKLAHOMA

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AUGUST 2014

TEXAS BOARD OF PROFESSIONAL ENGINEERS
REGISTRATION NUMBER F-001183

GEOTECH ENGINEERING and TESTING

Geotechnical, Environmental, Construction Materials, and Forensic Engineering

ACCREDITED

Reynolds, Smith & Hills, Inc.
11011 Richmond Avenue, Suite 900
Houston, Texas 77042

Project No. 13-889E
Report No.: 1
Project Type: 56
August 18, 2014

Attention: Mr. Ron Kline, P.E.
Highway Design Leader

FINAL REPORT
LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT
PROPOSED GESSNER ROAD PAVING AND DRAINAGE IMPROVEMENTS
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CITY OF HOUSTON, TEXAS
WBS NO.: N-000809-0001-3

Gentlemen:

Submitted here is the report of Geotech Engineering and Testing (GET) limited phase II Environmental Site Assessment (ESA) study for the above-referenced project. This study was performed in general accordance with the scope of our work as defined in GET Proposal No. P13-260, Revision V, dated December 18, 2013 and was authorized through a Notice-to-Proceed from Mr. Ronald R Kline, P.E. of Reynolds, Smith & Hills, Inc. on May 02, 2014.

This report presents the results of our field exploration, together with the limited chemical laboratory testing analysis on selected soil samples.

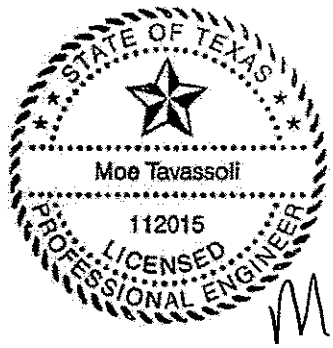
We appreciate the opportunity to be of service. Should you have any questions or need additional assistance, please call.

Very truly yours,

GEOTECH ENGINEERING AND TESTING
TBPE Registration Number F-001183

Matt Ahsanuzzaman, M.S.C.E., E.I.T.
Project Manager

Moe Tavassoli, Ph.D., P.E.
Engineering Manager



Moe Tavassoli
08-18-14

MA/MT/DAE/ma

Copies Submitted: (1) Hard Copy – Reynolds, Smith & Hills, Inc. – Mr. Ron Kline, P.E.
(1) PDF Copy Email – Reynolds, Smith & Hills, Inc. – Mr. Ron Kline, P.E.

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ILLUSTRATIONS

ABBREVIATIONS

AOC	Area of Concern
APAR	Affected Property Assessment Report
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
COCs or COC	Chemicals of Concern or Chemical of Concern
COH	City of Houston
ESA	Environmental Site Assessment
LPST	Leaking Petroleum Storage Tank
mg/kg	Miligrams per Kilogram. A measure of soils or sediment COC concentration. Could also be expressed as parts per million (ppm)
mg/L	Milligrams per Liter. A measure of groundwater COC concentration. Could also be expressed as parts per million (ppm)
MTBE	Methyl tert-Butyl Ether
ND	Not Detected at the Reporting Limit
OVA	Organic Vapor Analyzer
PAHs	Polycylic Aromatic Hydrocarbons
PCL	Protective Concentration Level
pH	A measure of a substance's acidity or alkalinity
PST	Petroleum Storage Tank. Could also be used as AST (Above-ground Storage Tank) or UST (Underground Storage Tank)
RCRA Metals	Resource Conservation and Recovery Act Metals (A suite of analysis for the following eight metals – arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium)
REC	Recognized Environmental Condition
SPLP	Synthetic Precipitation Leaching Procedure
TCEQ	Texas Commission on Environmental Quality
TMW	Temporary Monitoring Well
TPH	Total Petroleum Hydrocarbons
TRRP	Texas Risk Reduction Program
TSBC	Texas Specific Background Concentration
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

1.0 EXECUTIVE SUMMARY

It is planned for paving and drainage improvements to Gessner Road from Neuens Road to Long Point Road in the City of Houston, Texas. The total length of the project alignment is approximately ±4,240-ft. A site vicinity map is presented in Plate 1. Based on the results of our Phase I Environmental Site Assessment (GET Report No. 12-667E, dated November 05, 2013), some of the project alignments in Gessner Road and Long Point Road have recognized environmental conditions (RECs). Therefore, a Limited Phase II Environmental Site Assessment Study (ESA) was conducted to estimate the presence of **hydrocarbon contamination** along the proposed paving and drainage improvement alignment near the Areas of Concern (AOC).

The purpose of our study was to estimate the degree of hydrocarbon in the subsoil and groundwater near the AOC. The following is a summary of our limited phase II ESA study:

1. At the request of City of Houston (COH), the subsoils and groundwater conditions were evaluated by conducting ten (10) soil borings to depths ranging from 17- to 25-ft below existing grade near the AOC.

2. A Photoionization Detector (PID) was used to estimate the degree of organic vapor contamination in the soils at the boring locations. **The PID analysis did not show any recognizable readings on the soil samples.**

3. The soil cuttings not used in the laboratory testing were collected and stored inside 55-gallon drums at the GET facility. Since laboratory test indicated recognizable REC in some of samples in Boring BE-3, the soil samples not tested from this boring will be sent to a Hazardous landfill for disposal.

4. Selected soil and groundwater samples were tested for Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX) and Methyl *tert*-Butyl Ether (MTBE) analysis tests.

5. Our site investigation and field PID testing showed no recognizable contamination of the soil samples at the boring locations near the AOC. Moreover, based on the limited chemical testing analyses, all selected soil samples from the respective boring locations have TPH, BTEX and MTBE below the Reporting Limit except Boring BE-3.

6. Our limited chemical testing on the groundwater samples from Borings BE-8 and BE-9 indicated TPH, BTEX and MTBE levels below the Reporting limit.

7. **Due to presence of Chemical of Concerns (COCs) in soils samples collected from REC location 1, along Gessner Road between Haddington Drive and Timber Oak Drive (STA. 61+00 to STA. 65+00), this area should be declared as a Potentially Petroleum Contaminated Area (PPCA) in accordance with City of Houston Specification No 02105.**

8. **Please refer to the City of Houston's specifications Nos. 02120 and 02105 for additional details regarding the excavation, stockpile, dewatering and construction worker health and safety requirements.**

2.0 INTRODUCTION

2.1 General

It is planned for paving and drainage improvements for Gessner Road from Neuens Road to Long Point Road in the City of Houston, Texas. The total length of the project alignment is approximately ±4,240-ft. A site vicinity map is presented in Plate 1. Based on the results of our Phase I Environmental Site Assessment (GET Report No. 12-667E, dated November 05, 2013), some of the project alignments in Gessner Road and Long Point Road have recognized environmental conditions (RECs). The results of our study indicated the following REC's along the project alignment:

REC Location	REC No.
Gessner Road, Diamond Shamrock 302 LPST Site located at 1657 Gessner Road. • Also listed as UST Site and Historical Auto Station Site.	1
Gessner Road, Mini-Lube#1178 Site located at 1619 N. Gessner Road. • Also listed as UST/ Historical Auto Station Site.	2
Long Point Road, Spring Branch Memorial Rentals LPST Site located at 10102 Long Point Road. • Also listed as UST Site and Historical Auto Station Site.	3
Long Point Road, Nelson S Sinclair Service Station Site located at 10090 Long Point Road. • Also listed as UST Site and Historical Auto Station Site.	4
Long Point Road, Oak Village Gulf Station Site located at 10097 Long Point Road. • Also listed as UST Site and Historical Auto Station Site.	5

The purpose of our study was to estimate the degree of hydrocarbon and volatile organic compounds contamination in the subsoils and groundwater near the AOC.

3.0 FIELD EXPLORATION

3.1 Drilling and Sampling

At the request of the client, we investigated potential contaminations of the subsoils by conducting ten (10) soil borings to a completion depth of 17-ft to 25-ft near the AOCs. The existing pavement was cored prior to drilling and sampling. The boring numbers and depths are presented in Plate 2. The approximate boring locations are shown on the following table and Plates 3 through 5. The specific boring locations are as follows:

Alignment/Boring Location	Boring Number	Depth of Borings (ft)
Gessner Road Between Timberwood Dr. and Haddington Dr. (REC 1)	BE-1 through BE-3	17 to 22
Gessner Road Between Haddington Dr. and Warwana Road (REC 2)	BE-4 through BE-6	17 to 22
Long Point Road Near Gessner Road and Long Point Intersection (REC's 3,4 and 5)	BE-7 through BE-10	20 to 25

Soil samples were obtained continuously at the boring location from the ground surface to the completion depth of the borings. The cohesive soils were sampled in general accordance with the ASTM D 1587.

Since the borings were drilled in the paved areas, pavement coring was performed prior to drilling and sampling. Soil samples were examined and classified in the field. This data is presented on the logs of borings on Plates A-1 through A-10 in Appendix A. A key to the log terms and symbols is given on Plate A-11 in Appendix A.

3.2 Photoionization Detector (PID) Field Testing

A Photoionization Detector was used to estimate the degree of hydrocarbon contamination in the soils at the field. The PID machine did not show any recognizable readings of the soil samples tested. The PID field readings are presented on the logs of borings in Appendix A.

Soil samples were obtained continuously at each boring location from the ground surface to the completion depth of the borings.

3.3 Groundwater Sampling

Groundwater was encountered at boring locations BE-8 and BE-9. The groundwater samples were stored in clean, laboratory provided sample containers and kept in a cooler filled with ice for the chemical testing.

3.4 Borehole Grouting

After drilling and sampling, the boreholes were grouted using tremie method. All boreholes were grouted bottom up using Tremie pipe and concrete slurry. Pictures of our borehole grouting are shown in Appendix C of this report.

3.5 Sample Disposal

The soil samples not used for testing were collected and stored inside 55-gallon drums at the GET facility. Since laboratory test indicated recognizable REC in some of samples in Boring BE-3, these soil samples will be sent to a Hazardous landfill for disposal.

3.6 Soil and Groundwater Samples

The soil and groundwater samples were placed in glass jars, labeled and placed in an ice-filled cooler. After chain of custody procedures was followed to maintain and document possession, the samples were transported to A&B Environmental Services, Inc. for limited chemical testing.

4.0 LABORATORY TESTS

4.1 Chemical Testing

Chemical tests were performed on selected soil and groundwater samples. The chemical tests consisted of Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX) and Methyl *tert*-Butyl Ether (MTBE) analyses. A & B Labs performed these chemical analysis tests under a subcontract to GET. The test results are presented in Appendix B of this report.

4.2 Sample Storage

All samples tested or not tested will be stored for a period of 60 days subsequent to submittal of this report. The samples will be discarded after this period, unless we are instructed otherwise.

5.0 GENERAL SOILS CONDITIONS

5.1 Site Conditions

The project location is located along Gessner Road from Neuens Road to Long Point Road in City of Houston, Texas. Currently, the project alignment is concrete paved.

In general, residential and commercial structures are located on both sides of the alignment. Project area pictures were taken during our field exploration. These pictures are presented in cover page and Appendix C.

6.0 ANALYSIS OF THE CHEMICAL TESTS

6.1 General

Laboratory tests were conducted on selected soils and groundwater samples obtained from the borings. The TPH, BTEX and MTBE analyses were conducted on selected soil and groundwater samples to evaluate the subsoil and groundwater contamination at the boring locations. Our testing focused on analysis for hydrocarbons, RCRA metals and arsenic on soils and groundwater. A list of selected soil and groundwater samples tested is as follows:

Borings No.	Depth Range, ft	Sample Matrix	Chemical Tests		
			TPH	BTEX	MTBE
BE-1	8 – 10	Soil	√	√	√
BE-2	10 – 12	Soil	√	√	√
BE-3	0 – 2	Soil	√	√	√
BE-4	10 – 12	Soil	√	√	√
BE-5	12 – 14	Soil	√	√	√
BE-6	12 – 14	Soil	√	√	√
BE-7	8 – 10	Soil	√	√	√
BE-8	18 – 20	Soil	√	√	√
BE-8	18 – 20	Water (Sludge)	√	√	√
BE-9	14 – 16	Soil	√	√	√
BE-9	18 – 20	Water (Sludge)	√	√	√
BE-10	10 – 12	Soil	√	√	√

6.2 Results of the Limited Chemical Tests

Results of the limited chemical testing conducted by A & B Labs are presented in Appendix B of this report. A summary of the chemical test results on selected soils and groundwater samples are presented in following report sections.

6.2.1 Total Petroleum Hydrocarbons (TPHs)

TPH is a term used to describe several hundred chemical compounds that originally come from crude oil. TPHs analysis was conducted on ten (10) soil samples and two (2) groundwater (sludge) samples. Following is a summary of TPH concentrations:

Borings No.	Depth Range, ft	Sample Matrix	TPH, mg/kg		
			C6-C12	C12-C28	C28-35
BE-1	8 – 10	Soil	BRL	BRL	BRL
BE-2	10 – 12	Soil	BRL	BRL	BRL
BE-3	0 – 2	Soil	BRL	BRL	BRL
BE-4	10 – 12	Soil	BRL	BRL	BRL
BE-5	12 – 14	Soil	BRL	BRL	BRL
BE-6	12 – 14	Soil	BRL	BRL	BRL
BE-7	8 – 10	Soil	BRL	BRL	BRL
BE-8	18 – 20	Soil	BRL	BRL	BRL
BE-9	14 – 16	Soil	BRL	BRL	BRL
BE-10	10 – 12	Soil	BRL	BRL	BRL

Borings No.	Depth Range, ft	Sample Matrix	TPH, mg/kg		
			C6-C12	C12-C28	C28-35
BE-8	18 – 20	Water (Sludge)	BRL	BRL	BRL
BE-9	18 – 20	Water (Sludge)	BRL	BRL	BRL

Notes: 1) Testing results were compared to TCEQ Regulatory Guidance – TRRP, Tier-1 Commercial/ Industrial Protective Concentration Levels (PCLs), Exposure Pathways $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ and $^{GW}GW_{Ing}$ for a 0.5-Acre Source Area
2) BRL = Below Reporting Limit

Our review of the limited chemical testing analyses indicates that all selected soil and water (sludge) samples at the boring locations have TPH concentration below the Reporting Limit.

6.2.2 Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)

BTEX is the term used for benzene, toluene, ethylbenzene and three isomers of xylene typically found in petroleum products, such as gasoline and diesel fuel. BTEX compounds have the potential to move through soil and groundwater. This typically occurs near petroleum/natural gas production sites, service stations and other areas with Underground Storage Tanks (USTs) or Above-ground Storage Tanks (ASTs) containing gasoline or other petroleum-related products. BTEX analysis was conducted on ten (10) soil samples and two (2) water samples. The following is a summary of BTEX concentrations:

Borings No.	Depth Range, ft	Sample Matrix	BTEX, mg/kg			
			Benzene	Toluene	Ethylbenzene	Xylenes
BE-1	8 – 10	Soil	BRL	BRL	BRL	BRL
BE-2	10 – 12	Soil	BRL	BRL	BRL	BRL
BE-3	0 – 2	Soil	BRL	BRL	BRL	BRL
BE-4	10 – 12	Soil	BRL	BRL	BRL	BRL
BE-5	12 – 14	Soil	BRL	BRL	BRL	BRL
BE-6	12 – 14	Soil	BRL	BRL	BRL	BRL
BE-7	8 – 10	Soil	BRL	BRL	BRL	BRL
BE-8	18 – 20	Soil	BRL	BRL	BRL	BRL
BE-9	14 – 16	Soil	BRL	BRL	BRL	BRL
BE-10	10 – 12	Soil	BRL	BRL	BRL	BRL

Borings No.	Depth Range, ft	Sample Matrix	BTEX, mg/kg			
			Benzene	Toluene	Ethylbenzene	Xylenes
BE-8	18 – 20	Water (Sludge)	BRL	BRL	BRL	BRL
BE-9	18 – 20	Water (Sludge)	BRL	BRL	BRL	BRL

Notes: 1) Testing results were compared to TCEQ Regulatory Guidance – TRRP, Tier-1 Commercial/ Industrial Protective Concentration Levels (PCLs), Exposure Pathways $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ and $^{GW}GW_{Ing}$ for a 0.5-Acre Source Area
2) BRL = Below Reporting Limit

Our review of the limited chemical testing analyses indicates that all selected soil and water (sludge) samples at the boring locations have BTEX concentration below the Reporting Limit.

6.2.3 Methyl *tert*-Butyl Ether (MTBE)

MTBE is a chemical compound with molecular formula $C_5H_{12}O$. MTBE is a volatile, flammable and colorless liquid that is immiscible with, yet reasonably soluble, in water. MTBE is a gasoline additive, used as an oxygenate and to raise the octane number. MTBE analysis was conducted on ten (10) soil samples and two (2) water samples. Our review of the MTBE analysis results indicates that the MTBE components of the tested samples are Below Reporting Limit (BRL) except at Boring BE-3. The following is a summary of MTBE concentrations:

Borings No.	Depth Range, ft	Sample Matrix	MTBE[1], mg/kg
BE-1	8 – 10	Soil	BRL
BE-2	10 – 12	Soil	BRL
BE-3	0 – 2	Soil	0.012
BE-4	10 – 12	Soil	BRL
BE-5	12 – 14	Soil	BRL
BE-6	12 – 14	Soil	BRL
BE-7	8 – 10	Soil	BRL
BE-8	18 – 20	Soil	BRL
BE-9	14 – 16	Soil	BRL
BE-10	10 – 12	Soil	BRL

Borings No.	Depth, ft	Sample Matrix	MTBE[1], mg/Kg
BE-8	18 – 20	Water (Sludge)	BRL
BE-9	18 – 20	Water (Sludge)	BRL

Notes: 1) Testing results were compared to TCEQ Regulatory Guidance – TRRP, Tier-1 Commercial/ Industrial Protective Concentration Levels (PCLs), Exposure Pathways $^{Tot}Soil_{Comb}$ and $^{GW}Soil_{Ing}$ and $^{GW}GW_{Ing}$ for a 0.5-Acre Source Area
2) BRL = Below Reporting Limit

Our review of the limited chemical testing analyses indicates that all selected soil samples at the boring locations have MTBE concentration below the Reporting Limit except the sample collected from Boring BE-3. The MTBE concentration was higher compared to the PCLs recommended concentrations at this location.

7.0 CONCLUSIONS

- Our site investigation and field PID testing showed no recognizable contamination of the soil samples at the boring locations near the AOC. Moreover, based on the limited chemical analyses, selected soil samples from the respective boring locations have TPH and BTEX concentrations below the Reporting Limit. MTBE test results indicate that the selected soil samples have MTBE concentration below Reporting Limit except Boring BE-3.

- Our limited chemical testing on the groundwater (sludge) samples from Borings BE-8 and BE-9 indicated TPH, BTEX and MTBE concentrations below the Reporting limit.

- **Due to presence of COCs in soil samples collected from REC location 1 along Gessner Road between Haddington Drive and Timber Oak Drive (STA. 61+00 to STA. 65+00), this area should be declared as a Potentially Petroleum Contaminated Area (PPCA) in accordance with City of Houston Specification No 02105.**

- **Please refer to the City of Houston's specifications Nos. 02120 and 02105 for additional details regarding the excavation, stockpile, dewatering and construction worker health and safety requirements.**

8.0 RECOMMENDATIONS

- PPCA should be handled in accordance with the City of Houston Specifications (Section 02105 and 02120).

- Appropriate measures, such as petroleum resistant pipping and gaskets, should be used in design and construction of water line within the PPCA to prevent possible infiltration of the contaminants into the proposed water line, in accordance with City of Houston Specifications (Section 02105)

- All workers working in PPCA must have appropriate training as specified by the Occupational Safety and Health Administration (OSHA) in 29 CFR 1910.120. Before beginning work in PPCA, all workers are required to complete 40 hours OSHA health and safety training.

- Potential media screening, testing, handling and disposal in PPCA should be in accordance with City of Houston Specifications (Section 02105 and 02120).

9.0 QUALIFICATION OF ENVIRONMENTAL PROFESSIONALS

The GET team includes personnel from a variety of environmental disciplines. Key personnel involved in this project included the following:

- Moe Tavassoli, Ph.D., P.E. – Engineering Manager

- Matt Ahsanuzzaman, M.S.C.E., E.I.T. – Project Manager

Detail information about the qualifications of environmental professionals is shown in Appendix D.

10.0 LIMITATIONS

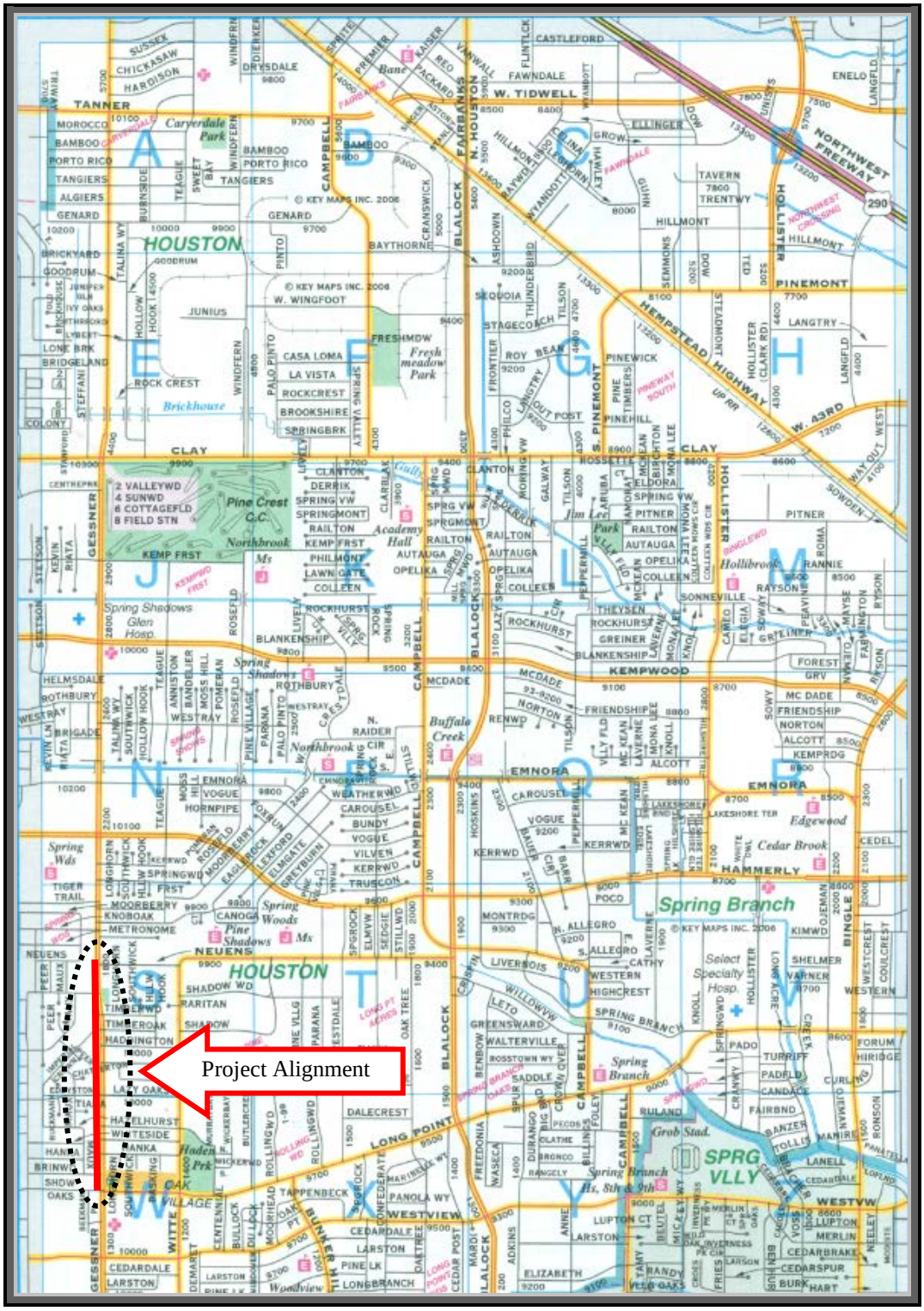
The conclusions developed in this limited study were based on field and laboratory data taken at specific on-site locations and the selected samples tested. The tested results only represent the limited soils conditions at the boring locations. Variations and contamination could exist on the site where the soils borings and chemical testing were not performed in this study.

11.0 STANDARD OF CARE

The recommendations described herein were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the engineering profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty or guarantee, expressed or implied, is made other than the work was performed in a proper and workmanlike manner.

12.0 REPORT DISTRIBUTION

This report was prepared for the sole and exclusive use by our client, based on specific and limited objectives. All reports, boring logs, field data, laboratory test results, maps and other documents prepared by GET as instruments of service shall remain the property of GET. Reuse of these documents is not permitted without written approval by GET. GET assumes no responsibility or obligation for the unauthorized use of this report by other parties and for purposes beyond the stated project objectives and work limitations.

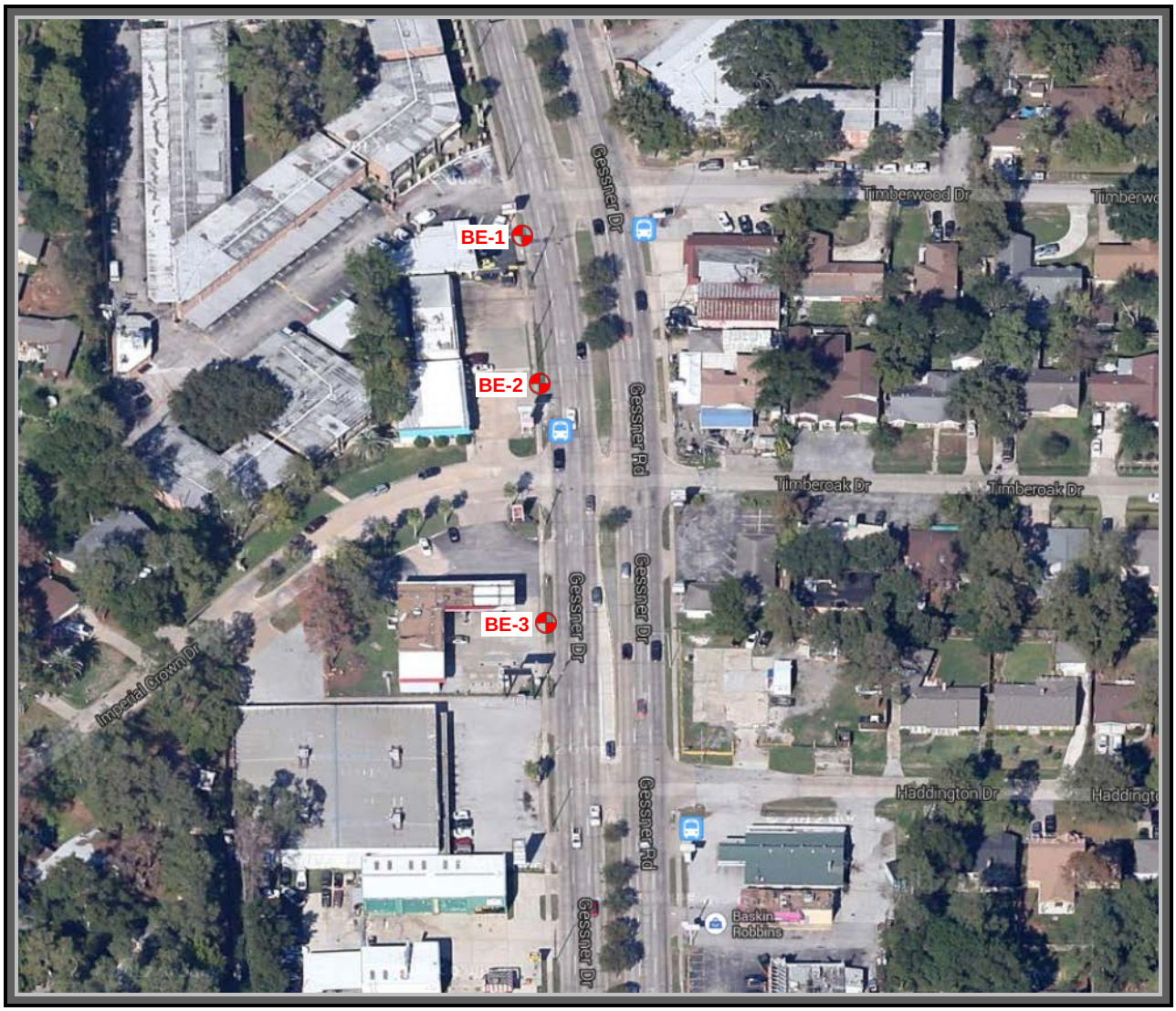


SITE VICINITY MAP			NORTH
PROJECT: Limited Phase II Environmental Site Assessment, Gessner Road from Neuens to Long Point Road WBS No. N-000809-0001-3, City of Houston, Texas			
SCALE: NOT TO SCALE	DATE: JUNE 2014	PROJECT NO.: 13-899E	

BORING NUMBERS AND DEPTHS

Boring No.	Storm Sewer Depth (ft)	Sanitary Sewer Depth (ft)	Boring Depth (ft.)
BE-1	10.00	12.00	17
BE-2*	10.00	12.00	22
BE-3	10.00	12.00	17
BE-4*	10.67	12.00	22
BE-5	10.67	12.00	17
BE-6	10.67	12.00	17
BE-7*	14.25	12.00	25
BE-8	14.25	12.00	20
BE-9	14.25	12.00	20
BE-10	14.25	12.00	20

Note: *Borings BE-2, BE-4 and BE-7 are increased by 5-ft to be used as geotechnical borings.



PLAN OF BORINGS (boring dimensions and locations are approximate)

NORTH

PROJECT: Limited Phase II Environmental Site Assessment, Gessner Road from Neuens Road to Long Point Road
WBS No. N-000809-0001-3, City of Houston, Texas

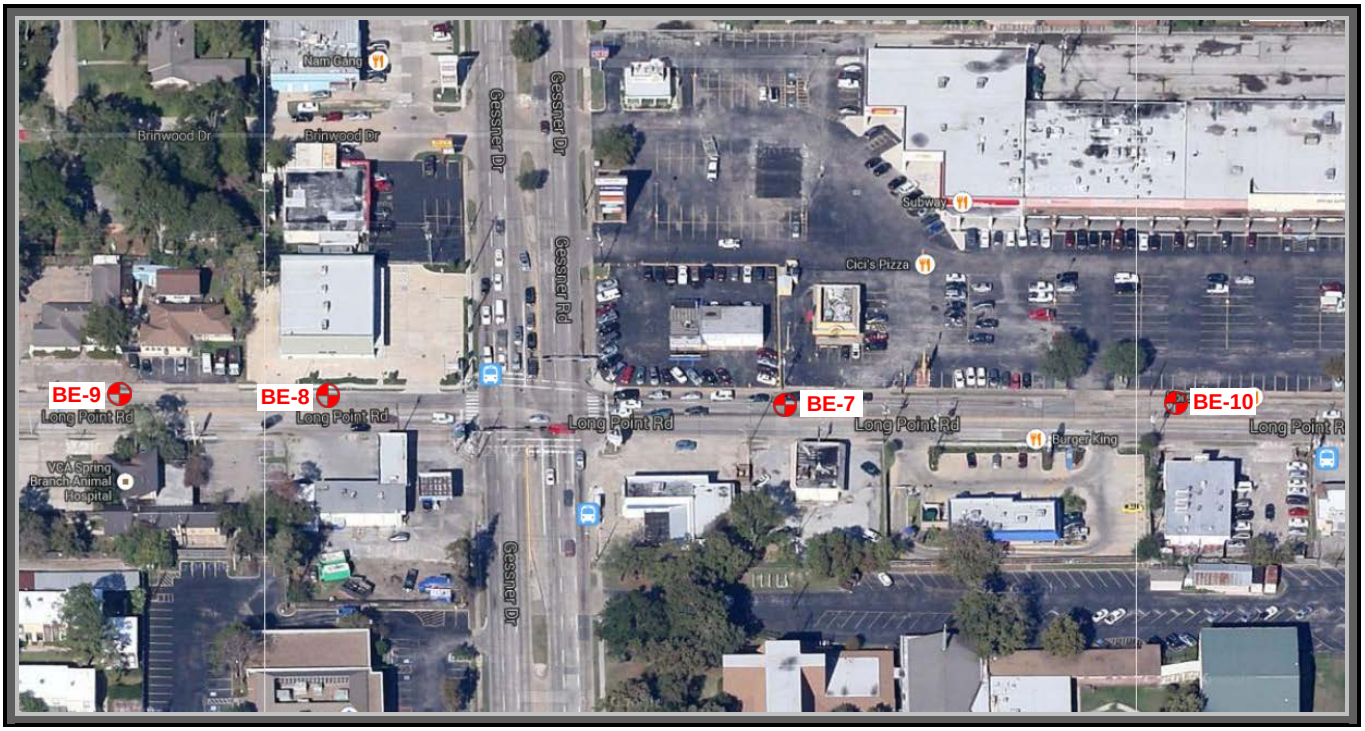
SCALE: NOT TO SCALE	DATE: JUNE 2014	PROJECT NO.: 13-889E

PLAN OF BORINGS (boring dimensions and locations are approximate)

NORTH

PROJECT: Limited Phase II Environmental Site Assessment, Gessner Road from Neuens Road to Long Point Road
WBS No. N-000809-0001-3, City of Houston, Texas

SCALE: NOT TO SCALE	DATE: JUNE 2014	PROJECT NO.: 13-889E



PLAN OF BORINGS (boring dimensions and locations are approximate)

NORTH

PROJECT: Limited Phase II Environmental Site Assessment, Gessner Road from Neuens Road to Long Point Road
WBS No. N-000809-0001-3, City of Houston, Texas

SCALE: NOT TO SCALE	DATE: JUNE 2014	PROJECT NO.: 13-889E

APPENDIX A

Log of Borings
Key to Log Terms & Symbols

LOG OF BORING NO. BE-1

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-5-14 COMPLETION DEPTH: 17.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
0					ELEVATION: Existing Grade
					CONCRETE PAVEMENT (8")
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0			LEAN CLAY (CL), light gray, light brown, with ferrous and calcareous nodules, sands - bronish yellow 4' to 10'
5		0			
		0			
		0.1			
10		0			SILTY SAND (SM), light gray, with clay pokcets
		0			
		0			LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
15		0			
		0			
20					
25					
30					

NATURAL MOISTURE CONTENT, %
LIQUID LIMIT, %
PLASTIC LIMIT, %
PLASTICITY INDEX, %
PERCENT PASSING NO. 200 SIEVE
SUCTION (pF)
DRY UNIT WEIGHT, pcf
PERCENT COMPACTION
PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
■ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-2

GEOTECH ENGINEERING & TESTING
Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-5-14 COMPLETION DEPTH: 22.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
0					ELEVATION: Existing Grade
					CONCRETE PAVEMENT (8")
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, ferrous and calcareous nodules, sands
		0			LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
5		0.2			- light brown 6' to 10'
		0.2			
		0.4			
10		0.6			SILTY SAND (SM), light gray, brown yellow, with clay pokcets
		0.1			
15		0.4			
		0.1			LEAN CLAY (CL), light gray, light brown, with ferrous and calcareous nodules, sands
		0.6			
20		0.4			- brownish yellow 20' to 25'
25					
30					

NATURAL MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	PERCENT PASSING NO. 200 SIEVE	SUCTION (pF)	DRY UNIT WEIGHT, pcf	PERCENT COMPACTION	PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
▮ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-3

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-5-14 COMPLETION DEPTH: 17.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
					ELEVATION: Existing Grade
0					CONCRETE PAVEMENT (8")
		2			FILL: LEAN CLAY (CL), light gray, brownish yellow, sands
		0.3			LEAN CLAY (CL), light gray, light brown, with ferrous and calcareous nodules, sands
5		0.2			- brownish yellow 4' to 10'
		0.4			
		0.4			
10		0.4			SILTY SAND (SM), light gray, brownish yellow, with clay pokcets
		0.3			
15		0.3			LEAN CLAY (CL), light gray, light brown, sands
		1			
20					
25					
30					

NATURAL MOISTURE CONTENT, %
LIQUID LIMIT, %
PLASTIC LIMIT, %
PLASTICITY INDEX, %
PERCENT PASSING NO. 200 SIEVE
SUCTION (pF)
DRY UNIT WEIGHT, pcf
PERCENT COMPACTION
PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
■ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ____ TO ____ ft.
WET ROTARY: ____ TO ____ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-4

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-5-14 COMPLETION DEPTH: 22.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
0					ELEVATION: Existing Grade
					CONCRETE PAVEMENT (7")
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0			LEAN CLAY (CL), light gray, light brown, brownish yellow, with ferrous and calcareous nodules, sands
5		0			
		0			
		0			SILTY SAND (SM), light gray, with clay pokcets
10		0.2			
		0			
15		0			
		0			LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0			
20		0			
25					
30					

NATURAL MOISTURE CONTENT, %
LIQUID LIMIT, %
PLASTIC LIMIT, %
PLASTICITY INDEX, %
PERCENT PASSING NO. 200 SIEVE
SUCTION (pF)
DRY UNIT WEIGHT, pcf
PERCENT COMPACTION
PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
▮ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-5

Sheet 1 of 1

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-5-14 COMPLETION DEPTH: 17.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
					ELEVATION: Existing Grade
0					CONCRETE PAVEMENT (8")
		0			FILL: LEAN CLAY (CL), light brown, brownish yellow, with ferrous and calcareous nodules, sands
		0			LEAN CLAY (CL), light gray, brown, with ferrous and calcareous nodules, sands
5		0			- brownish yellow 4' to 8'
		0			
		0			
10		0			SILTY SAND (SM), light gray, with clay pokcets
		0.1			
15		0			LEAN CLAY (CL), light brown, brownish yellow, with ferrous and calcareous nodules, sands
		0			
20					
25					
30					

NATURAL MOISTURE CONTENT, %
LIQUID LIMIT, %
PLASTIC LIMIT, %
PLASTICITY INDEX, %
PERCENT PASSING NO. 200 SIEVE
SUCTION (pF)
DRY UNIT WEIGHT, pcf
PERCENT COMPACTION
PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
■ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-6

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-6-14 COMPLETION DEPTH: 17.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION	NATURAL MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	PERCENT PASSING NO. 200 SIEVE	SUCTION (pF)	DRY UNIT WEIGHT, pcf	PERCENT COMPACTION	PASSING/FAILING (P/F)	UNDRAINED SHEAR STRENGTH, tsf ▲ HAND PENETROMETER ■ TORVANE ● UNCONFINED COMPRESSION ○ UNCONSOLIDATED-UNDRAINED TRIAXIAL 0.5 1.0 1.5 2.0 2.5
					ELEVATION: Existing Grade										
0					CONCRETE PAVEMENT (7")										
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with sands										
		0			LEAN CLAY (CL), light gray, light brown, brownish yellow, with ferrous and calcareous nodules, sands										
5		0													
		0													
		0													
10		0			SILTY SAND (SM), light gray, brownish yellow, with clay pokcets										
		0.2													
15		0			LEAN CLAY (CL), light brown, brownish yellow, with ferrous and calcareous nodules, sands										
		0													
20															
25															
30															

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-7

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-6-14 COMPLETION DEPTH: 25.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
0					ELEVATION: Existing Grade
0					CONCRETE PAVEMENT (7.5")
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0			LEAN CLAY (CL), light gray, light brown, brownish yellow, with ferrous and calcareous nodules, sands
5		0			
		0			
		0.1			
10		0			
		0			SILTY SAND (SM), light gray, with clay pokcets
15		0			
		0			
		0			
20		0			
		0			
25					LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
30					

NATURAL MOISTURE CONTENT, %
LIQUID LIMIT, %
PLASTIC LIMIT, %
PLASTICITY INDEX, %
PERCENT PASSING NO. 200 SIEVE
SUCTION (pF)
DRY UNIT WEIGHT, pcf
PERCENT COMPACTION
PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
▮ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ____ TO ____ ft.
WET ROTARY: ____ TO ____ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-8

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-6-14 COMPLETION DEPTH: 20.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION	NATURAL MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	PERCENT PASSING NO. 200 SIEVE	SUCTION (pF)	DRY UNIT WEIGHT, pcf	PERCENT COMPACTION	PASSING/FAILING (P/F)	UNDRAINED SHEAR STRENGTH, tsf
0					ELEVATION: Existing Grade										
					CONCRETE PAVEMENT (7.5")										
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands										
		0			LEAN CLAY (CL), light gray, light brown, brownish yellow, with ferrous and calcareous nodules, sands										
5		0													
		0													
		0			SILTY SAND (SM), light gray, with clay pokcets										
10		0													
		0													
15		0													
		0			LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands										
		0.2													
20															
25															
30															

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
■ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
▽: WATER ENCOUNTERED AT 18.0 ft. DURING DRILLING
▼: WATER DEPTH AT 18.0 ft. AFTER 0.33-HOUR

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-9

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-6-14 COMPLETION DEPTH: 20.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
					ELEVATION: Existing Grade
0					CONCRETE PAVEMENT (7.5")
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0.1			LEAN CLAY (CL), light gray, light brown, brownish yellow, with ferrous and calcareous nodules, sands
5		0			
		0			
		0			SILTY SAND (SM), light gray, with clay pokcets
10		0			
		0			
		0			
15		0.2			
		0			LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0			
20					
25					
30					

NATURAL MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	PERCENT PASSING NO. 200 SIEVE	SUCTION (pF)	DRY UNIT WEIGHT, pcf	PERCENT COMPACTION	PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
▮ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
▽ : WATER ENCOUNTERED AT 18.0 ft. DURING DRILLING
▼ : WATER DEPTH AT 18.0 ft. AFTER 0.33-HOUR

DRY AUGER: ____ TO ____ ft.
WET ROTARY: ____ TO ____ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

LOG OF BORING NO. BE-10

Geotech Engineering and Testing
800 Victoria Drive
Houston, Texas 77022
Phone: 713-699-4000 Fax: 713-699-9200

PROJECT: Limited Phase II ESA at Gessner Road Area
LOCATION: City of Houston, Texas
PROJECT NO.: N-000809-0001-3 STATION NO.:
DATE: 6-6-14 COMPLETION DEPTH: 20.0 ft.

DEPTH, ft	SPT N-VALUE blows per foot	OVM, ppm	SYMBOL	SAMPLES	DESCRIPTION
0					ELEVATION: Existing Grade
					CONCRETE PAVEMENT (7.5")
		0			FILL: LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
		0			LEAN CLAY (CL), light gray, light brown, brownish yellow, with ferrous and calcareous nodules, sands
5		0			
		0			
		0			
10		0.2			SILTY SAND (SM), light gray, with clay pokcets
		0			
		0			LEAN CLAY (CL), light gray, brownish yellow, with ferrous and calcareous nodules, sands
15		0			
		0			
20		0			
25					
30					

NATURAL MOISTURE CONTENT, %
LIQUID LIMIT, %
PLASTIC LIMIT, %
PLASTICITY INDEX, %
PERCENT PASSING NO. 200 SIEVE
SUCTION (pF)
DRY UNIT WEIGHT, pcf
PERCENT COMPACTION
PASSING/FAILING (P/F)

UNDRAINED SHEAR STRENGTH, tsf
▲ HAND PENETROMETER
▮ TORVANE
● UNCONFINED COMPRESSION
○ UNCONSOLIDATED-UNDRAINED TRIAXIAL
0.5 1.0 1.5 2.0 2.5

WATER OBSERVATIONS:
NO FREE WATER ENCOUNTERED DURING DRILLING

DRY AUGER: ___ TO ___ ft.
WET ROTARY: ___ TO ___ ft.

DRILLED BY: GET(T)
LOGGED BY: MATT

OVM2 13-889E.GPJ OVM.GDT 7/19/14

KEY TO LOG TERMS AND SYMBOLS

UNIFIED SOIL CLASSIFICATIONS

Symbol		Material Descriptions
GW		WELL GRADED-GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
GM		SILTY GRAVELS, GRAVEL-SAND SILT MIXTURES
GC		CLAY GRAVELS, GRAVEL-SAND CLAY MIXTURES
SW		WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SP		POORLY GRADED SANDS, OR GRAVELLY SANDS, LITTLE OR NO FINES
SM		SILTY SANDS, SAND-SILT MIXTURES a
SC		CLAYEY SANDS, SAND-SILT MIXTURES b
ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, LEAN CLAYS
OL		ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
PT		PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT
		FILL SOILS

TERMS CHARACTERIZING SOIL STRUCTURE

Slickensided	-	Having incline planes of weakness that are slick and glossy in appearance.
Fissured	-	Containing shrinkage cracks frequently filled with fine sand or silt: usually vertical.
Laminated	-	Composed of thin layers of varying colors and soil sample texture.
Interbedded	-	Composed of alternate layers of different soil types.
Calcareous	-	Containing appreciable quantities of calcium carbonate.
Well Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes.
Poorly Graded	-	Predominantly of one grain size, or having a range of sizes with some intermediate sizes missing.
Pocket	-	Inclusion of material of different texture that is smaller than the diameter of the sample.
Parting	-	Inclusion less than ⅛-inch thick extending through the sample.
Seam	-	Inclusion ⅛- to 3-inch thick extending through the sample.
Layer	-	Inclusion greater than 3-inch thick extending through the sample.
Interlayered	-	Soils sample composed of alternating layers of different soil types.
Intermixed	-	Soil samples composed of pockets of different soil type and layered or laminated structure is not evident.

COARSE GRAINED SOILS (major portion retained on No. 200 Sieve): Includes (1) clean gravels and sands, and (2) silty or clayey gravels and sands. Conditions rated according to standard penetration test (SPT)* as performed in the field.

Descriptive Terms	Blows Per Foot*
Very Loose	0 – 4
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 – 50
Very Dense	over 50

* 140 pound weight having a free fall of 30-inch

FINE GRAINED SOILS (major portion passing No. 200 Sieve): Include (1) inorganic or organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength as indicated by hand penetrometer readings or by unconfined compression tests.

Descriptive Term	Undrained Shear Strength Ton/Sq. Ft.
Very Soft	Less than 0.13
Soft	0.13 to 0.25
Firm	0.25 to 0.50
Stiff	0.50 to 1.00
Very Stiff	1.00 to 2.00
Hard	2.00 or higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above because of weakness or cracks in the soil. The consistency ratings of such soils are based on hand penetrometer readings.

SOIL SAMPLERS

- SHELBY TUBE SAMPLER
- STANDARD PENETRATION TEST
- AUGER SAMPLING

TERMS CHARACTERIZING ROCK PROPERTIES

VERY SOFT OR PLASTIC	Can be remolded in hand: corresponds in consistency up to very stiff in soils.
SOFT	Can be scratched with fingernail.
MODERATELY HARD	Can be scratched easily with knife; cannot be scratched with fingernail. Difficult to scratch with knife.
VERY HARD	Cannot be scratched with knife.
POORLY CEMENTED OR FRIABLE	Easily crumbled.
CEMENTED	Bounded Together by chemically precipitated materials.
UNWEATHERED	Rock in its natural state before being exposed to atmospheric agents.
SLIGHTLY WEATHERED	Noted predominantly by color change with no disintegrated zones.
WEATHERED	Complete color change with zones of slightly decomposed rock.
EXTREMELY WEATHERED	Complete color change with consistency, texture, and general appearance or soil.

APPENDIX B

Results of Limited Chemical Testing by A & B Labs with Chain of Custody Records

Laboratory Analysis Report

Total Number of Pages: 21

Job ID : 14060325

10100 East Freeway, Suite 100, Houston, TX 77029 tel: 713-453-6060, fax: 713-453-6091, http://www.ablabs.com

Client Project Name :

13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Report To :	Client Name:	Geotech Engineering & Testing	P.O.#.:	S 17184
	Attn:	Matt Ahsan	Sample Collected By:	Matt Ahsan
	Client Address:	800 Victoria Drive	Date Collected:	06/05/14 - 06/06/14
	City, State, Zip:	Houston, Texas, 77022		

A&B Labs has analyzed the following samples...

Client Sample ID	Matrix	A&B Sample ID
BE-1 (8'-10')	Soil	14060325.01
BE-2 (10'-12')	Soil	14060325.02
BE-3 ('0-2')	Soil	14060325.03
BE-4 (10'-12')	Soil	14060325.04
BE-5 (12'-14')	Soil	14060325.05
BE-6 (12'-14')	Soil	14060325.06
BE-7 (8'-10')	Soil	14060325.07
BE-8 (18'-20')	Soil	14060325.08
Water (18'-20')	Sludge	14060325.09
BE-9 (14'-16')	Soil	14060325.10
Water (18'-20')	Sludge	14060325.11
BE-10 (10'-12')	Soil	14060325.12

Released By: Shantall Carpenter

Title: Senior Project Manager

Date: 6/13/2014

This Laboratory is NELAP (T104704213-14-11) accredited. Effective: 04/01/2014; Expires: 03/31/2015

Scope: Non-Potable Water, Drinking Water, Air, Solid, Hazardous Waste

I am the laboratory manager, or his/her designee, and I am responsible for the release of this data package. This laboratory data package has been reviewed and is complete and technically compliant with the requirements of the methods used, except where noted in the attached exception reports. I affirm, to the best of my knowledge that all problems/anomalies observed by this laboratory (and if applicable, any and all laboratories subcontracted through this laboratory) that might affect the quality of the data, have been identified in the Laboratory Review Checklist, and that no information or data have been knowingly withheld that would affect the quality of the data.

Date Received : 06/09/2014 16:45

LABORATORY TERM AND QUALIFIER DEFINITION REPORT

Job ID : 14060325

Date: 6/13/2014

General Term Definition

Back-Wt	Back Weight	Post-Wt	Post Weight
BRL	Below Reporting Limit	ppm	parts per million
cfu	colony-forming units	Pre-Wt	Previous Weight
Conc.	Concentration	Q	Qualifier
D.F.	Dilution Factor	RegLimit	Regulatory Limit
Front-Wt	Front Weight	RPD	Relative Percent Difference
LCS	Laboratory Check Standard	RptLimit	Reporting Limit
LCSD	Laboratory Check Standard Duplicate	SDL	Sample Detection Limit
MS	Matrix Spike	surr	Surrogate
MSD	Matrix Spike Duplicate	T	Time
MW	Molecular Weight	TNTC	Too numerous to count

Qualifier Definition

Q18	Soils not collected in a hermetically sealed container may lose low-level VOCs.
R3	MS/MSD RPD exceeds control limit. Recovery meets acceptance criteria."The sample randomly selcted as QC for this batch was not part of your project. Therefore, this sample matrix is not applicable to your project samples."
R4	LCS/LCSD RPD exceeds control limit. Recovery meets acceptance criteria.

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-1 (8'-10')
Date Collected: 06/05/14
Time Collected: 10:30
Other Information:

Job Sample ID: 14060325.01
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	0.99	0.0049261		Q18	06/10/14 11:07	SP
	Benzene	BRL	mg/Kg	0.99	0.0049261			06/10/14 11:07	SP
	Toluene	BRL	mg/Kg	0.99	0.0049261			06/10/14 11:07	SP
	Ethylbenzene	BRL	mg/Kg	0.99	0.0049261			06/10/14 11:07	SP
	m- & p-Xylenes	BRL	mg/Kg	0.99	0.0098522			06/10/14 11:07	SP
	o-Xylene	BRL	mg/Kg	0.99	0.0049261			06/10/14 11:07	SP
	Xylenes	BRL	mg/Kg	0.99	0.0049261			06/10/14 11:07	SP
	Trifluorotoluene(surr)	99.5	%	0.99	81-111			06/10/14 11:07	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/10/14 23:43	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/10/14 23:43	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/10/14 23:43	AVB
	Total C6-C35	BRL	mg/Kg	1				06/10/14 23:43	AVB
	1-Chlorooctane(surr)	89	%	1	60-143			06/10/14 23:43	AVB
	Chlorooctadecane(surr)	100	%	1	60-150			06/10/14 23:43	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-2 (10'-12')
Date Collected: 06/05/14
Time Collected: 12:00
Other Information:

Job Sample ID: 14060325.02
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.00	0.0050		Q18	06/10/14 11:59	SP
	Benzene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:59	SP
	Toluene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:59	SP
	Ethylbenzene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:59	SP
	m- & p-Xylenes	BRL	mg/Kg	1.00	0.0100			06/10/14 11:59	SP
	o-Xylene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:59	SP
	Xylenes	BRL	mg/Kg	1.00	0.0050			06/10/14 11:59	SP
	Trifluorotoluene(surr)	100	%	1.00	81-111			06/10/14 11:59	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 00:07	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 00:07	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 00:07	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 00:07	AVB
	1-Chlorooctane(surr)	69.4	%	1	60-143			06/11/14 00:07	AVB
	Chlorooctadecane(surr)	66.2	%	1	60-150			06/11/14 00:07	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-3 ('0-2')
Date Collected: 06/05/14
Time Collected: 13:00
Other Information:

Job Sample ID: 14060325.03
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	0.012	mg/Kg	1.00	0.0050		Q18	06/10/14 12:25	SP
	Benzene	BRL	mg/Kg	1.00	0.0050			06/10/14 12:25	SP
	Toluene	BRL	mg/Kg	1.00	0.0050			06/10/14 12:25	SP
	Ethylbenzene	BRL	mg/Kg	1.00	0.0050			06/10/14 12:25	SP
	m- & p-Xylenes	BRL	mg/Kg	1.00	0.0100			06/10/14 12:25	SP
	o-Xylene	BRL	mg/Kg	1.00	0.0050			06/10/14 12:25	SP
	Xylenes	BRL	mg/Kg	1.00	0.0050			06/10/14 12:25	SP
	Trifluorotoluene(surr)	102	%	1.00	81-111			06/10/14 12:25	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 00:32	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 00:32	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 00:32	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 00:32	AVB
	1-Chlorooctane(surr)	72.2	%	1	60-143			06/11/14 00:32	AVB
	Chlorooctadecane(surr)	96.3	%	1	60-150			06/11/14 00:32	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-4 (10'-12')
Date Collected: 06/05/14
Time Collected: 14:00
Other Information:

Job Sample ID: 14060325.04
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.01	0.0051		Q18	06/10/14 12:51	SP
	Benzene	BRL	mg/Kg	1.01	0.0051			06/10/14 12:51	SP
	Toluene	BRL	mg/Kg	1.01	0.0051			06/10/14 12:51	SP
	Ethylbenzene	BRL	mg/Kg	1.01	0.0051			06/10/14 12:51	SP
	m- & p-Xylenes	BRL	mg/Kg	1.01	0.0101			06/10/14 12:51	SP
	o-Xylene	BRL	mg/Kg	1.01	0.0051			06/10/14 12:51	SP
	Xylenes	BRL	mg/Kg	1.01	0.0051			06/10/14 12:51	SP
	Trifluorotoluene(surr)	103	%	1.01	81-111			06/10/14 12:51	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 00:56	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 00:56	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 00:56	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 00:56	AVB
	1-Chlorooctane(surr)	68.7	%	1	60-143			06/11/14 00:56	AVB
	Chlorooctadecane(surr)	76.7	%	1	60-150			06/11/14 00:56	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-5 (12'-14')
Date Collected: 06/05/14
Time Collected: 15:45
Other Information:

Job Sample ID: 14060325.05
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	0.99	0.0049		Q18	06/10/14 13:16	SP
	Benzene	BRL	mg/Kg	0.99	0.0049			06/10/14 13:16	SP
	Toluene	BRL	mg/Kg	0.99	0.0049			06/10/14 13:16	SP
	Ethylbenzene	BRL	mg/Kg	0.99	0.0049			06/10/14 13:16	SP
	m- & p-Xylenes	BRL	mg/Kg	0.99	0.0099			06/10/14 13:16	SP
	o-Xylene	BRL	mg/Kg	0.99	0.0049			06/10/14 13:16	SP
	Xylenes	BRL	mg/Kg	0.99	0.0049			06/10/14 13:16	SP
	Trifluorotoluene(surr)	101	%	0.99	81-111			06/10/14 13:16	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 01:21	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 01:21	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 01:21	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 01:21	AVB
	1-Chlorooctane(surr)	79.1	%	1	60-143			06/11/14 01:21	AVB
	Chlorooctadecane(surr)	93	%	1	60-150			06/11/14 01:21	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-6 (12'-14')
Date Collected: 06/06/14
Time Collected: 13:30
Other Information:

Job Sample ID: 14060325.06
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.01	0.0050			06/10/14 14:08	SP
	Benzene	BRL	mg/Kg	1.01	0.0050		Q18	06/10/14 14:08	SP
	Toluene	BRL	mg/Kg	1.01	0.0050			06/10/14 14:08	SP
	Ethylbenzene	BRL	mg/Kg	1.01	0.0050			06/10/14 14:08	SP
	m- & p-Xylenes	BRL	mg/Kg	1.01	0.0101			06/10/14 14:08	SP
	o-Xylene	BRL	mg/Kg	1.01	0.0050			06/10/14 14:08	SP
	Xylenes	BRL	mg/Kg	1.01	0.0050			06/10/14 14:08	SP
	Trifluorotoluene(surr)	101	%	1.01	81-111			06/10/14 14:08	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 01:45	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 01:45	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 01:45	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 01:45	AVB
	1-Chlorooctane(surr)	64.4	%	1	60-143			06/11/14 01:45	AVB
	Chlorooctadecane(surr)	78.7	%	1	60-150			06/11/14 01:45	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-7 (8'-10')
Date Collected: 06/06/14
Time Collected: 15:45
Other Information:

Job Sample ID: 14060325.07
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	0.99	0.0049		Q18	06/10/14 14:33	SP
	Benzene	BRL	mg/Kg	0.99	0.0049			06/10/14 14:33	SP
	Toluene	BRL	mg/Kg	0.99	0.0049			06/10/14 14:33	SP
	Ethylbenzene	BRL	mg/Kg	0.99	0.0049			06/10/14 14:33	SP
	m- & p-Xylenes	BRL	mg/Kg	0.99	0.0099			06/10/14 14:33	SP
	o-Xylene	BRL	mg/Kg	0.99	0.0049			06/10/14 14:33	SP
	Xylenes	BRL	mg/Kg	0.99	0.0049			06/10/14 14:33	SP
	Trifluorotoluene(surr)	99.5	%	0.99	81-111			06/10/14 14:33	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 02:09	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 02:09	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 02:09	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 02:09	AVB
	1-Chlorooctane(surr)	77.3	%	1	60-143			06/11/14 02:09	AVB
	Chlorooctadecane(surr)	82	%	1	60-150			06/11/14 02:09	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-8 (18'-20')
Date Collected: 06/06/14
Time Collected: 10:00
Other Information:

Job Sample ID: 14060325.08
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.00	0.0050		Q18	06/10/14 14:59	SP
	Benzene	BRL	mg/Kg	1.00	0.0050			06/10/14 14:59	SP
	Toluene	BRL	mg/Kg	1.00	0.0050			06/10/14 14:59	SP
	Ethylbenzene	BRL	mg/Kg	1.00	0.0050			06/10/14 14:59	SP
	m- & p-Xylenes	BRL	mg/Kg	1.00	0.0100			06/10/14 14:59	SP
	o-Xylene	BRL	mg/Kg	1.00	0.0050			06/10/14 14:59	SP
	Xylenes	BRL	mg/Kg	1.00	0.0050			06/10/14 14:59	SP
	Trifluorotoluene(surr)	101	%	1.00	81-111			06/10/14 14:59	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 02:58	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 02:58	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 02:58	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 02:58	AVB
	1-Chlorooctane(surr)	77.6	%	1	60-143			06/11/14 02:58	AVB
	Chlorooctadecane(surr)	83.5	%	1	60-150			06/11/14 02:58	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: Water (18'-20')
Date Collected: 06/06/14
Time Collected: 10:30
Other Information:

Job Sample ID: 14060325.09
Sample Matrix Sludge

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.010	0.005		Q18	06/12/14 15:26	SP
	Benzene	BRL	mg/Kg	1.010	0.005			06/12/14 15:26	SP
	Toluene	BRL	mg/Kg	1.010	0.005			06/12/14 15:26	SP
	Ethylbenzene	BRL	mg/Kg	1.010	0.005			06/12/14 15:26	SP
	m- & p-Xylenes	BRL	mg/Kg	1.010	0.010			06/12/14 15:26	SP
	o-Xylene	BRL	mg/Kg	1.010	0.005			06/12/14 15:26	SP
	Xylenes	BRL	mg/Kg	1.010	0.005			06/12/14 15:26	SP
	Trifluorotoluene(surr)	103	%	1.010	81-111			06/12/14 15:26	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	2	47.4			06/12/14 23:17	AVB
	>C12-C28[1]	BRL	mg/Kg	2	40.6			06/12/14 23:17	AVB
	>C28-C35[1]	BRL	mg/Kg	2	35.4			06/12/14 23:17	AVB
	Total C6-C35	BRL	mg/Kg	2				06/12/14 23:17	AVB
	1-Chlorooctane(surr)	103	%	2	60-143			06/12/14 23:17	AVB
	Chlorooctadecane(surr)	125	%	2	60-150			06/12/14 23:17	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-9 (14'-16')
Date Collected: 06/06/14
Time Collected: 12:00
Other Information:

Job Sample ID: 14060325.10
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.00	0.0050		Q18	06/10/14 15:50	SP
	Benzene	BRL	mg/Kg	1.00	0.0050			06/10/14 15:50	SP
	Toluene	BRL	mg/Kg	1.00	0.0050			06/10/14 15:50	SP
	Ethylbenzene	BRL	mg/Kg	1.00	0.0050			06/10/14 15:50	SP
	m- & p-Xylenes	BRL	mg/Kg	1.00	0.0100			06/10/14 15:50	SP
	o-Xylene	BRL	mg/Kg	1.00	0.0050			06/10/14 15:50	SP
	Xylenes	BRL	mg/Kg	1.00	0.0050			06/10/14 15:50	SP
	Trifluorotoluene(surr)	98.5	%	1.00	81-111			06/10/14 15:50	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 03:22	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 03:22	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 03:22	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 03:22	AVB
	1-Chlorooctane(surr)	71.7	%	1	60-143			06/11/14 03:22	AVB
	Chlorooctadecane(surr)	79.6	%	1	60-150			06/11/14 03:22	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: Water (18'-20')
Date Collected: 06/06/14
Time Collected: 12:30
Other Information:

Job Sample ID: 14060325.11
Sample Matrix Sludge

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1	0.005		Q18	06/12/14 19:19	SP
	Benzene	BRL	mg/Kg	1	0.005			06/12/14 19:19	SP
	Toluene	BRL	mg/Kg	1	0.005			06/12/14 19:19	SP
	Ethylbenzene	BRL	mg/Kg	1	0.005			06/12/14 19:19	SP
	m- & p-Xylenes	BRL	mg/Kg	1	0.01			06/12/14 19:19	SP
	o-Xylene	BRL	mg/Kg	1	0.005			06/12/14 19:19	SP
	Xylenes	BRL	mg/Kg	1	0.005			06/12/14 19:19	SP
	Trifluorotoluene(surr)	101	%	1	81-111			06/12/14 19:19	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/12/14 21:39	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/12/14 21:39	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/12/14 21:39	AVB
	Total C6-C35	BRL	mg/Kg	1				06/12/14 21:39	AVB
	1-Chlorooctane(surr)	91.2	%	1	60-143			06/12/14 21:39	AVB
	Chlorooctadecane(surr)	87.5	%	1	60-150			06/12/14 21:39	AVB

LABORATORY TEST RESULTS

Job ID : 14060325

Date 6/13/2014

Client Name: Geotech Engineering & Testing Attn: Matt Ahsan

Project Name: 13-889E / Limited Phase II Gessner Road, Paving Neuens Rd. to Long Point Rd., Houston, TX

Client Sample ID: BE-10 (10'-12')
Date Collected: 06/06/14
Time Collected: 14:00
Other Information:

Job Sample ID: 14060325.12
Sample Matrix Soil

Test Method	Parameter/Test Description	Result	Units	DF	Rpt Limit	Reg Limit	Q	Date Time	Analyst
SW-846 8021B	Purgeable Aromatics								
	MTBE	BRL	mg/Kg	1.00	0.0050		Q18	06/10/14 11:33	SP
	Benzene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:33	SP
	Toluene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:33	SP
	Ethylbenzene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:33	SP
	m- & p-Xylenes	BRL	mg/Kg	1.00	0.0100			06/10/14 11:33	SP
	o-Xylene	BRL	mg/Kg	1.00	0.0050			06/10/14 11:33	SP
	Xylenes	BRL	mg/Kg	1.00	0.0050			06/10/14 11:33	SP
	Trifluorotoluene(surr)	102	%	1.00	81-111			06/10/14 11:33	SP
TX 1005	Total Petroleum Hydrocarbons								
	C6-C12[1]	BRL	mg/Kg	1	23.7		Q18	06/11/14 03:46	AVB
	>C12-C28[1]	BRL	mg/Kg	1	20.3			06/11/14 03:46	AVB
	>C28-C35[1]	BRL	mg/Kg	1	17.7			06/11/14 03:46	AVB
	Total C6-C35	BRL	mg/Kg	1				06/11/14 03:46	AVB
	1-Chlorooctane(surr)	60.9	%	1	60-143			06/11/14 03:46	AVB
	Chlorooctadecane(surr)	70.6	%	1	60-150			06/11/14 03:46	AVB

[1]-Parameter not available for accreditation

QUALITY CONTROL CERTIFICATE

Job ID : 14060325 **Date :** 6/13/2014

Analysis : Purgeable Aromatics **Method :** SW-846 8021B **Reporting Units :** mg/Kg

QC Batch ID : Qb14061037 **Created Date :** 06/10/14 **Created By :** Spabba

Samples in This QC Batch : 14060325.01,02,03,04,05,06,07,08,10,12

Sample Preparation : PB14061023 **Prep Method :** SW-846 5035A **Prep Date :** 06/10/14 09:45 **Prep By :** Spabba

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	RptLimit		Qual
MTBE	1634-04-4	BRL	mg/Kg	1	0.005		
Benzene	71-43-2	BRL	mg/Kg	1	0.005		
Toluene	108-88-3	BRL	mg/Kg	1	0.005		
Ethylbenzene	100-41-4	BRL	mg/Kg	1	0.005		
m- & p-Xylenes	108-38-3&106-42-3	BRL	mg/Kg	1	0.01		
o-Xylene	95-47-6	BRL	mg/Kg	1	0.005		
Xylenes	1330-20-7	BRL	mg/Kg	1	0.005		
Trifluorotoluene(surr)	98-08-8	102	%	1	81-111		

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
MTBE	0.05	0.045	90	0.05	0.045	90	0	20	67.2-132	
Benzene	0.05	0.05	100	0.05	0.048	96	4.1	20	76.2-128	
Toluene	0.05	0.05	100	0.05	0.049	98	2	20	74.2-126	
Ethylbenzene	0.05	0.05	100	0.05	0.049	98	2	20	79.4-125	
m- & p-Xylenes	0.1	0.101	101	0.1	0.098	98	3	20	76.3-126	
o-Xylene	0.05	0.05	100	0.05	0.048	96	4.1	20	77.1-123	
Xylenes	0.15	0.151	101	0.15	0.146	97.3	3.4	20	77.2-125	

QC Type: MS and MSD
QC Sample ID: 14060325.12

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
MTBE	BRL	0.05	0.049	98	0.051	0.044	86.3	10.8	26	76-134	
Benzene	BRL	0.05	0.048	96	0.051	0.044	86.3	8.7	19	68-138	
Toluene	BRL	0.05	0.049	98	0.051	0.044	86.3	10.8	19	67-135	
Ethylbenzene	BRL	0.05	0.049	98	0.051	0.043	84.3	13	20	71-127	
m- & p-Xylenes	BRL	0.1	0.099	99	0.101	0.086	85.1	14.1	27	56-135	
o-Xylene	BRL	0.05	0.05	100	0.051	0.043	84.3	15.1	24	56-134	
Xylenes	BRL	0.149	0.149	100	0.152	0.129	84.9	14.4	25	59-134	

Refer to the Definition page for terms.

QUALITY CONTROL CERTIFICATE

Job ID : 14060325 **Date :** 6/13/2014

Analysis : Total Petroleum Hydrocarbons **Method :** TX 1005 **Reporting Units :** mg/Kg

QC Batch ID : Qb14061111 **Created Date :** 06/11/14 **Created By :** AVBembde

Samples in This QC Batch : 14060325.01,02,03,04,05,06,07,08,10,12

Sample Preparation : PB14061110 **Prep Method :** TX 1005 **Prep Date :** 06/10/14 16:30 **Prep By :** AVBembde

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	RptLimit		Qual
C6-C12	TPH-1005-1	BRL	mg/Kg	1	23.7		
>C12-C28	TPH-1005-2	BRL	mg/Kg	1	20.3		
>C28-C35	TPH-1005-4	BRL	mg/Kg	1	17.7		
Total C6-C35		BRL	mg/Kg	1			
Chlorooctadecane(surr)	3386-33-2	117	%	1	60-150		
1-Chlorooctane(surr)	111-85-3	126	%	1	60-143		

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
C6-C12	500	456	91.2	500	535	107	15.9	20	75-125	
>C12-C28	500	453	90.6	500	528	106	15.3	20	75-125	
>C28-C35	500	390	78	500	517	103	28	20	75-125	R4

QC Type: MS and MSD
QC Sample ID: 14060382.01

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
C6-C12	BRL	500	479	94.3	500	527	104	9.7	20	75-125	
>C12-C28	BRL	500	487	94.7	500	526	102	7.9	20	75-125	
>C28-C35	BRL	500	414	82.8	500	534	107	25.3	20	75-125	R3

Refer to the Definition page for terms.

QUALITY CONTROL CERTIFICATE

Job ID : 14060325 **Date :** 6/13/2014

Analysis : Purgeable Aromatics **Method :** SW-846 8021B **Reporting Units :** mg/Kg

QC Batch ID : Qb14061233 **Created Date :** 06/12/14 **Created By :** Spabba

Samples in This QC Batch : 14060325.09,11

Sample Preparation : PB14061324 **Prep Method :** SW-846 5035A **Prep Date :** 06/12/14 10:00 **Prep By :** Spabba

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	RptLimit		Qual
MTBE	1634-04-4	BRL	mg/Kg	1	0.005		
Benzene	71-43-2	BRL	mg/Kg	1	0.005		
Toluene	108-88-3	BRL	mg/Kg	1	0.005		
Ethylbenzene	100-41-4	BRL	mg/Kg	1	0.005		
m- & p-Xylenes	108-38-3&106-42-3	BRL	mg/Kg	1	0.01		
o-Xylene	95-47-6	BRL	mg/Kg	1	0.005		
Xylenes	1330-20-7	BRL	mg/Kg	1	0.005		
Trifluorotoluene(surr)	98-08-8	100	%	1	81-111		

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
MTBE	0.05	0.05	100	0.05	0.05	100	0	20	67.2-132	
Benzene	0.05	0.05	100	0.05	0.05	100	0	20	76.2-128	
Toluene	0.05	0.05	100	0.05	0.05	100	0	20	74.2-126	
Ethylbenzene	0.05	0.051	102	0.05	0.051	102	0	20	79.4-125	
m- & p-Xylenes	0.1	0.101	101	0.1	0.101	101	0	20	76.3-126	
o-Xylene	0.05	0.05	100	0.05	0.05	100	0	20	77.1-123	
Xylenes	0.15	0.151	101	0.15	0.151	101	0	20	77.2-125	

QC Type: MS and MSD
QC Sample ID: 14060493.02

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
MTBE	BRL	0.05	0.043	86	0.051	0.043	84.3	0	26	76-134	
Benzene	BRL	0.05	0.043	86	0.051	0.043	84.3	0	19	68-138	
Toluene	BRL	0.05	0.043	86	0.051	0.043	84.3	0	19	67-135	
Ethylbenzene	BRL	0.05	0.044	88	0.051	0.043	84.3	2.3	20	71-127	
m- & p-Xylenes	BRL	0.101	0.086	85.1	0.101	0.086	85.1	0	27	56-135	
o-Xylene	BRL	0.05	0.043	86	0.051	0.042	82.4	2.4	24	56-134	
Xylenes	BRL	0.151	0.129	85.4	0.152	0.128	84.2	0.8	25	59-134	

Refer to the Definition page for terms.

QUALITY CONTROL CERTIFICATE

Job ID : 14060325 **Date :** 6/13/2014

Analysis : Total Petroleum Hydrocarbons **Method :** TX 1005 **Reporting Units :** mg/Kg

QC Batch ID : Qb14061306 **Created Date :** 06/13/14 **Created By :** AVBembde

Samples in This QC Batch : 14060325.09,11

Sample Preparation : PB14061306 **Prep Method :** TX 1005 **Prep Date :** 06/12/14 16:00 **Prep By :** AVBembde

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	RptLimit		Qual
C6-C12	TPH-1005-1	BRL	mg/Kg	1	23.7		
>C12-C28	TPH-1005-2	BRL	mg/Kg	1	20.3		
>C28-C35	TPH-1005-4	BRL	mg/Kg	1	17.7		
Total C6-C35		BRL	mg/Kg	1			
Chlorooctadecane(surr)	3386-33-2	103	%	1	60-150		
1-Chlorooctane(surr)	111-85-3	102	%	1	60-143		

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
C6-C12	500	393	78.6	500	499	99.8	23.8	20	75-125	R4
>C12-C28	500	395	79	500	505	101	24.4	20	75-125	R4
>C28-C35	500	380	76	500	472	94.4	21.6	20	75-125	R4

QC Type: MS and MSD
QC Sample ID: 14060452.01

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
C6-C12	BRL	500	553	109	500	540	106	2.4	20	75-125	
>C12-C28	BRL	500	535	103	500	551	106	3.1	20	75-125	
>C28-C35	BRL	500	613	121	500	551	109	10.8	20	75-125	

Refer to the Definition page for terms.

A & B Labs — Chain of Custody

The Chain of Custody is a Legal Document

10100 East Fwy (I-10)
Suite 100
Houston, TX 77029
713-453-6060
1-877-478-6060 Toll Free
713-453-6091 Fax
ablabs.com

A&B JOB ID # 14060325

5. Project # 13-889E

1. REPORT TO:
Company: Geotech Engg & Testing.
Address: 800 Victoria Drive, Houston, TX 77022
Contact: Matt Ahsan
Phone: (713) 699-4000
Fax: ☐ (713) 699-9200
E-mail: ☐ matt@geotecheng.com

2. INVOICE TO:
Company: Geotech Engg & Testing
Address: 800 Victoria Dr., Houston, TX 77022
Contact: Matt Ahsan
Phone: (713) 699-4000
Fax: ☐ (713) 699-9200
E-mail: ☐ matt@geotecheng.com

3. PO #
3a. A&B Quote #
4. Turnaround Time (Business Days)
☐ 1 Day* ☐ Other:
☐ 2 Days*
☐ 3 Days* *Surcharge applies
☒ 7 Days - Standard

6. Project Name/Location: Limited Phase II Gessner Road Paving Neuens Rd. to Long Point Rd., Houston, TX

7. Reporting Requirement:
☐ TRRP Limits only ☐ TRRP Rpt. Package ☐ See Attached ☐ Standard Level II ☐ PST ☐ MDL ☐ EDD

8. Sampler's Name & Company (PLEASE PRINT): Matt Ahsan
Sampler's Signature & Date: [signature] 6/9/2014

13. No. of Containers
14. Containers*
15. Preservatives**
16. PH-Lab Only
17. Analyses/Methods: TPH, BTEX, MTBE

LAB USE ONLY	9. Sample ID and Description	10. Sampling Date	Time 24hr	11. Comp.	Grab	12. Matrix: Water	Soil	Sludge	Oil	Drinking Water	Air	Other	No. of Containers	TPH	BTEX	MTBE	18. REMARKS
01A	BE-1 (8'-10')	06/05/14	10:30				X							X	X	X	
02A	BE-2 (10'-12')	06/05/14	12:00				X							X	X	X	
03A	BE-3 (0'-2')	06/05/14	13:00				X							X	X	X	
04A	BE-4 (10'-12')	06/05/14	14:00				X							X	X	X	
05A	BE-5 (12'-14')	06/05/14	15:45				X							X	X	X	
06A	BE-6 (12'-14')	06/06/14	13:30				X							X	X	X	
07A	BE-7 (8'-10')	06/06/14	15:45				X							X	X	X	
08A	BE-8 (18'-20')	06/06/14	10:00				X							X	X	X	
09ABC	Water (18'-20')	06/06/14	10:30			X								X	X	X	

19. RELINQUISHED BY	DATE	TIME	20. RECEIVED BY	DATE	TIME
1 [signature]	06/09/14	4:45PM	[signature]	6/9/14	1645
2					
3					

21. KNOWN HAZARDS/COMMENTS

Temperature: 5.1-0.9=4.2 °C
Thermometer ID 0200320
Intact (Y) or N Initials [initials]

*Containers: VOA - 40 ml vial; 4 oz/8 oz - glass wide mouth; A/G - Amber/Glass 1 Liter; P/O - Plastic/other ______

**Preservatives: C - Cool; OH - NaOH; H - HCl; T - $NA_2S_2O_3$; N - HNO_3; X - Other ______; S - H_2SO_4

METHOD OF SHIPMENT

BILL OF LADING/TRACKING #

A&B cannot accept verbal changes. Please FAX written changes to 713-453-6091

LAB USE ONLY SAMPLING ______ RENTAL ______ P/U

Samples will be disposed of after 30 days

A & B Labs — Chain of Custody

The Chain of Custody is a Legal Document

10100 East Fwy (I-10)
Suite 100
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713-453-6060
1-877-478-6060 Toll Free
713-453-6091 Fax
ablabs.com

A&B JOB ID # 14060325

5. Project # 13-889E

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Company: Geotech Engg. & Testing
Address: 800 Victoria Dr.
Houston, TX 77022
Contact: Matt Ahsan
Phone: (713) 699-4000
Fax: ☐ (713) 699-9200
E-mail: ☐ matt@geotecheng.com

2. INVOICE TO:
Company: Geotech Engg. & Test.
Address: 800 Victoria Dr.
Houston, TX 77022
Contact: Matt Ahsan
Phone: (713) 699-4000
Fax: ☐ (713) 699-9200
E-mail: ☐ matt@geotecheng.com

3. PO #
3a. A&B Quote #
4. Turnaround Time (Business Days)
☐ 1 Day* ☐ Other:
☐ 2 Days*
☐ 3 Days* *Surcharge applies
☒ 7 Days - Standard

6. Project Name/Location: Limited Phase II Gessner Rd Paving — Neuhaus Rd to Long Point Rd, Houston, TX

7. Reporting Requirement:
☐ TRRP Limits only ☐ TRRP Rpt. Package ☐ See Attached ☐ Standard Level II ☐ PST ☐ MDL ☐ EDD

8. Sampler's Name & Company (PLEASE PRINT): Matt Ahsan
Sampler's Signature & Date: [signature] 06/09/2014

13. No. of Containers
14. Containers*
15. Preservatives**
16. PH-Lab Only
17. Analyses/Methods: TPH, BTEX, MTBE

LAB USE ONLY	9. Sample ID and Description	10. Sampling Date	Time 24hr	11. Comp.	Grab	12. Matrix: Water	Soil	Sludge	Oil	Drinking Water	Air	Other	No. of Containers	TPH	BTEX	MTBE	18. REMARKS
10A	BE-9 (14'-16')	06/06/14	12:00				X							X	X	X	
11ABC	Water (18'-20')	06/06/14	12:30			X								X	X	X	
12A	BE-10 (10'-12')	06/06/14	14:00				X							X	X	X	

	19. RELINQUISHED BY	DATE	TIME	20. RECEIVED BY	DATE	TIME
1	[signature]	06/09/14	4:45PM	[signature]	6.9.14	1645
2						
3						

21. KNOWN HAZARDS/COMMENTS

Temperature: 5.1-0.9=4.2 C
Thermometer ID 102002370
Intact: Y or N Initials DR

*Containers: VOA - 40 ml vial; 4 oz/8 oz - glass wide mouth; A/G - Amber/Glass 1 Liter; P/O - Plastic/other ______

**Preservatives: C - Cool; OH - NaOH; H - HCl; T - $NA_2S_2O_3$; N - HNO_3; X - Other ______; S - H_2SO_4

METHOD OF SHIPMENT

BILL OF LADING/TRACKING #

A&B cannot accept verbal changes
Please FAX written changes to 713-453-6091

LAB USE ONLY SAMPLING ______ RENTAL ______ P/U ______

Samples will be disposed of after 30 days

Sample Condition Checklist

A&B JobID : **14060325**	Date Received : **06/09/2014**	Time Received : **4:45PM**
Client Name : **Geotech Engineering & Testing**		
Temperature : **5.1-0.9cf=4.2°C**	Sample pH : **NA**	
Thermometer ID : **102002320**	pH Paper ID : **NA**	

	Check Points	Yes	No	N/A
1.	**Cooler seal present and signed.**		X	
2.	**Sample(s) in a cooler.**	X		
3.	**If yes, ice in cooler.**	X		
4.	**Sample(s) received with chain-of-custody.**	X		
5.	**C-O-C signed and dated.**	X		
6.	**Sample(s) received with signed sample custody seal.**		X	
7.	**Sample containers arrived intact. (If no comment).**	X		
8.	**Matrix :** **Water** ☑ **Soil** ☑ **Liquid** ☐ **Sludge** ☐ **Solid** ☐ **Cassette** ☐ **Tube** ☐ **Bulk** ☐ **Badge** ☐ **Food** ☐ **Other** ☐			
9.	**Sample(s) were received in appropriate container(s).**	X		
10.	**Sample(s) were received with proper preservative**			X
11.	**All samples were logged or labeled.**	X		
12.	**Sample ID labels match C-O-C ID's**	X		
13.	**Bottle count on C-O-C matches bottles found.**	X		
14.	**Sample volume is sufficient for analyses requested.**		X	
15.	**Samples were received within the hold time.**	X		
16.	**VOA vials completely filled.**		X	
17.	**Sample accepted.**	X		

Comments : Include actions taken to resolve discrepancies/problem:

Water samples were received in VOA vials approximately 10mLs full with soil sediment. Per client instructions, run samples 09 and 11 as a sludge due to insufficient water volume. AS 6/11/14

Received by : Dlopez

Check in by/date : Dlopez / 06/09/2014

APPENDIX C

Project Site Pictures

Picture # 1

Picture # 2

Picture # 3

Picture # 4

Picture # 5

Picture # 6

Picture # 7

Picture # 8

Picture # 9

Picture # 10

Picture # 11

Picture # 12

Picture # 13

Picture # 14

APPENDIX D

Qualifications of Environmental Professionals

MOE TAVASSOLI, Ph.D., P.E.
VICE PRESIDENT

SUMMARY

Mr. Tavassoli is the vice president of Geotech Engineering and Testing (GET) with the responsibility for the daily operations of geotechnical and environmental explorations, data analyses and the preparation of report recommendations. He has over 20 years of experience in the field of environmental and geotechnical engineering. His environmental engineering experience is related to residential and commercial developments, educational facilities, roads, parks, underground utilities, buildings, flood control channels, community centers, and airports. His other experience includes groundwater and soil contamination modeling.

EDUCATION

Ph.D., 1991, Civil Engineering, Tulane University, New Orleans, Louisiana.
M.S.C.E., 1987, Civil Engineering, University of New Orleans, Louisiana.
B.S.C.E., 1984, Louisiana State University, Baton Rouge, Louisiana.

PROFESSIONAL REGISTRATION

Registered Professional Engineer

EXPERIENCE

2011 − Present
Geotech Engineering and Testing − Houston, Texas
Vice President

2006 − 2010
Camp Dresser & McKee (CDM) – New Orleans, Louisiana
Senior Geotechnical Engineer / Task Manager

1996 − 2006
Professional Service Industries (PSI) – Jefferson, Louisiana
Regional Engineer

1992 – 1996
Gore Engineering Inc., − Metairie, Louisiana
Project Engineer

1987 – 1992
Tulane University – New Orleans, Louisiana
Research Assistant

SAM SAMOO
PROJECT MANAGER

SUMMARY

Mr. Sam Samoo is a project manager at Geotech Engineering and Testing (GET) with the responsibility for the daily operations of environmental and geotechnical explorations, data analysis and the preparation of report recommendations. He has experience in the fields of geotechnical, materials, and environmental engineering. His environmental engineering experience is related to public infrastructure residential, commercial developments, educational facilities, roads, underground utilities and buildings. Mr. samoo actively involved in environmental site assessment projects, including Phase I and Phase II Environmental Site Assessment Studies.

EDUCATION

2011 Master of Science in Civil Engineering
Oregon State University

2009 Master of Engineering in Civil Engineering
Oregon State University

2006 Bachelor of Science in Civil Engineering
University of Engineering and Technology, Pakistan

EXPERIENCE

2012 – Present
Geotech Engineering and Testing – Houston, Texas
Project Manager

MATT AHSANUZZAMAN
PROJECT MANAGER

SUMMARY

Mr. Matt Ahsanuzzaman is a project manager at Geotech Engineering and Testing (GET) with the responsibility for the daily operations of environmental and geotechnical explorations, data analysis and the preparation of report recommendations. He has experience in the fields of geotechnical, pavement, materials, environmental engineering and construction management. His environmental engineering experience is related to public infrastructure residential, commercial developments, educational facilities, roads, underground utilities and buildings. Mr. Ahsan actively involved in environmental site assessment projects, including Phase I and Phase II Environmental Site Assessment Studies.

EDUCATION

2013 Master of Science (M.S.) in Civil and Environmental Engineering – University of Nevada at Reno (UNR), Reno, Nevada

2009 Masters of Science (M.S.) in Civil (Transportation) Engineering – University of Hawaii at Manoa (UHM), Honolulu, HI

2005 Bachelors of Science (B. Sc.) in Civil Engineering – Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

PROFESSIONAL REGISTRATION

Engineer in Training – Texas Board of Professional Engineer

EXPERIENCE

2013 – Present
Geotech Engineering and Testing – Houston, Texas
Project Manager

2009 – 2010
State of Hawaii Department of Transportation – Honolulu, Hawaii
Civil Engineer II